

# NorCal Engineering

SOILS AND GEOTECHNICAL CONSULTANTS  
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March 2, 1998

Project Number 5936-96

Boeing Realty Corporation  
4060 Lakewood Boulevard, 6th Floor  
Long Beach, California 90808-1700

Attn: Mr. Stephen Bisset

RE: Review of Western Laboratories Letter dated February 4, 1998 -  
Excavation Backfill Operations for Boeing Realty - Located at the  
Southwest Corner of 190th Street and Normandie Avenue,  
California

Dear Mr. Bisset:

As requested, the undersigned has reviewed the above referenced letter from Western Laboratories which addressed our report dated December 11, 1997 and the backfill operations which recently took place on site. NorCal recognizes and agrees with Western that items 1 through 10 listed on page 1 of their letter were observed and tested by this firm and are considered "certified" fills (compacted to 90% or more relative compaction with bottom inspections) to the elevations tested.

Items on page 2 of the letter were not observed and tested by NorCal and will require further field testing in order to assure that the areas have been compacted to a minimum of 90% of the laboratory maximum dry density per ASTM D 1557-91. The items on page 2 and recommended actions are as follows.

<u>Item No.</u>	<u>Approximate Depth Fill (ft.)</u>	<u>Recommended Action</u>
1-12 and 14	6 to 14	Excavate test pits in order to test compaction of existing fill soils
13, 16, 18-21, 23	2	No action.
15	--	No action.
17, 22	4	Excavate test pits in order to test compaction of existing fill soils.

Testing of the backfill soils in areas 1-12, 14, 17 and 22 will be conducted to determine if soils placed have in fact been compacted to at least 90% relative compaction. Test excavations made must be backfilled and compacted to 90% after soil samples have been retrieved. It should be noted that the field testing in some of these areas will indicate the density of soils tested only and will not constitute a "certification" of the fill soils in areas where bottoms could not be verified by this firm.

Areas 13, 16, 18-21 and 23 are locations where existing foundations and grade beams were removed. Depth of these structures were on the order of 24 inches from existing grades and it was not deemed necessary by the contractor that these areas be recompacted as they will likely be recompacted during site grading operations for the planned development.

A discussion with Kirk Sheller, Senior Engineer with Western Laboratories, was held on February 27th. At this time Mr. Sheller stated that item 15 was in error and thus no action will be required in this area.

We appreciate this opportunity to be of service to you. If you have any further questions, please do not hesitate to contact the undersigned.

Respectfully submitted,  
NORCAL ENGINEERING



Mark A. Burkholder  
Project Manager

**NorCal Engineering**